WHAT IS CLAIMED IS:

1. A method comprising:

acquiring a plurality of images of a first portion of a body undergoing

5   substantially periodic motion, each of the plurality of images associated

with a respective time;

determining a correlation between at least two of the plurality of

images; and

determining a period of the periodic motion based on the respective

10   times associated with the at least two of the plurality of images.

2. A method according to Claim 1, wherein the plurality of images

comprise three-dimensional cross-sectional images of the first portion of

the body.

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3. A method according to Claim 2, wherein the images are acquired

by a computed tomography scanner.

4. A method according to Claim 2, wherein the images are acquired

20   using a linear accelerator.

5. A method according to Claim 1, wherein the plurality of images

comprise projection images of the first portion of the body.

25   6. A method according to Claim 5, wherein acquiring the plurality of

images comprises:

acquiring the plurality of images at a first projection angle with

respect to the body.

30   7. A method according to Claim 6, further comprising:

acquiring a projection image of the portion of the body at a second

projection angle with respect to the body, the projection image acquired at

a time substantially equal to a time associated with one of the at least two of the plurality of images plus an integer multiple of the determined period.

8. A method according to Claim 7, further comprising:

generating a combined projection image based on the at least two of the plurality of images; and

generating a second combined image based on the combined image and the projection image acquired at a second projection angle with respect to the body.

9. A method according to Claim 7, further comprising:

acquiring a second plurality of images of the portion of the body at a second projection angle with respect to the body, each of the second plurality of images associated with a respective time;

determining a correlation between at least two of the second plurality of images; and

determining the period of the periodic motion based on the respective times associated with the at least two of the second plurality of images.

10. A method according to Claim 5, further comprising:

generating a combined image corresponding to a first phase of the periodic motion based on the at least two of the plurality of images.

11. A method according to Claim 10, wherein acquiring the plurality of images comprises:

setting an x-ray tube current to less than or equal to half of a standard x-ray tube current used for imaging; and

acquiring the least two of the plurality of images based on the x-ray tube current.

12. A method according to Claim 5, wherein the projection images are acquired by a C-arm.

13. A method according to Claim 5, wherein the projection images are acquired using a linear accelerator.

14. A method according to Claim 1, wherein determining the correlation comprises:
determining that the at least two of the plurality of images represent substantially a same phase of the periodic motion.

15. A method according to Claim 1, further comprising:
generating a combined image corresponding to a first phase of the periodic motion based on the at least two of the plurality of images.

16. A method according to Claim 15, wherein acquiring the plurality of images comprises:
setting an x-ray tube current to less than or equal to half of a standard x-ray tube current used for imaging; and
acquiring the least two of the plurality of images based on the x-ray tube current.

17. A method according to Claim 1, further comprising:
acquiring an image of a second portion of the body at a time substantially equal to a time associated with one of the at least two of the plurality of images plus an integer multiple of the determined period.

18. A method according to Claim 17, further comprising:
generating a combined image based on the at least two of the plurality of images; and
generating a second combined image based on the combined image and the image of the second portion of the body.

19. A method according to Claim 1, further comprising:

acquiring a second plurality of images of a second portion of the body, each of the second plurality of images associated with a respective time;

determining a correlation between at least two of the second plurality of images; and

determining the period of the periodic motion based on the respective times associated with the at least two of the second plurality of images.

20. A method according to Claim 1, further comprising:

acquiring a second plurality of images of a second portion of the body, each of the second plurality of images associated with a respective time substantially equal to a time associated with one of the plurality of images of the first portion of a body plus an integer multiple of the determined period.

21. A method according to Claim 20, further comprising:

generating a combined image based on the at least two of the plurality of images;

generating a second combined image based on at least two of the second plurality of images, each of the at least two of the second plurality of images associated with a time substantially equal to a time associated with one of the at least two of the plurality of images of the first portion of a body plus an integer multiple of the determined period; and

generating a third combined image based on the combined image and the second combined image.

22. An apparatus comprising:

a memory storing processor-executable process steps; and

a processor in communication with the memory and operative in conjunction with the stored process steps to:

acquire a plurality of images of a first portion of a body undergoing substantially periodic motion, each of the plurality of images associated

5   with a respective time;

determine a correlation between at least two of the plurality of images; and

determine a period of the periodic motion based on the respective times associated with the at least two of the plurality of images.

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23. An apparatus according to Claim 22, wherein the plurality of images comprise three-dimensional cross-sectional images of the first portion of the body.

15   24. An apparatus according to Claim 23, wherein the images are acquired by a computed tomography scanner.

25. An apparatus according to Claim 23, wherein the images are acquired using a linear accelerator.

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26. An apparatus according to Claim 22, wherein the plurality of images comprise projection images of the first portion of the body.

27. An apparatus according to Claim 26, wherein acquisition of the

25   plurality of images comprises:

acquisition of the plurality of images at a first projection angle with respect to the body.

28. An apparatus according to Claim 27, the processor further

30   operative in conjunction with the stored process steps to:

acquire a projection image of the portion of the body at a second projection angle with respect to the body, the projection image acquired at

a time substantially equal to a time associated with one of the at least two of the plurality of images plus an integer multiple of the determined period.

29. An apparatus according to Claim 28, the processor further operative in conjunction with the stored process steps to:

generate a combined projection image based on the at least two of the plurality of images; and

generate a second combined image based on the combined image and the projection image acquired at a second projection angle with respect to the body.

30. An apparatus according to Claim 28, the processor further operative in conjunction with the stored process steps to:

acquire a second plurality of images of the portion of the body at a second projection angle with respect to the body, each of the second plurality of images associated with a respective time;

determine a correlation between at least two of the second plurality of images; and

determine the period of the periodic motion based on the respective times associated with the at least two of the second plurality of images.

31. An apparatus according to Claim 26, the processor further operative in conjunction with the stored process steps to:

generate a combined image corresponding to a first phase of the periodic motion based on the at least two of the plurality of images.

32. An apparatus according to Claim 31, wherein acquisition of the plurality of images comprises:

setting of an x-ray tube current to less than or equal to half of a standard x-ray tube current used for imaging; and

acquisition of the least two of the plurality of images based on the x-ray tube current.

33. An apparatus according to Claim 26, wherein the projection images are acquired by a C-arm.

5   34. An apparatus according to Claim 26, wherein the projection images are acquired using a linear accelerator.

35. An apparatus according to Claim 22, wherein determination of the correlation comprises:

10   determination that the at least two of the plurality of images represent substantially a same phase of the periodic motion.

36. An apparatus according to Claim 22, the processor further operative in conjunction with the stored process steps to:

15   generate a combined image corresponding to a first phase of the periodic motion based on the at least two of the plurality of images.

37. An apparatus according to Claim 36, wherein acquisition of the plurality of images comprises:

20   setting of an x-ray tube current to less than or equal to half of a standard x-ray tube current used for imaging; and

acquisition of the least two of the plurality of images based on the x-ray tube current.

25   38. An apparatus according to Claim 22, the processor further operative in conjunction with the stored process steps to:

acquire an image of a second portion of the body at a time substantially equal to a time associated with one of the at least two of the plurality of images plus an integer multiple of the determined period.

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39. An apparatus according to Claim 38, the processor further operative in conjunction with the stored process steps to:

generate a combined image based on the at least two of the plurality of images; and

generate a second combined image based on the combined image and the image of the second portion of the body.

40. An apparatus according to Claim 22, the processor further operative in conjunction with the stored process steps to:

acquire a second plurality of images of a second portion of the body, each of the second plurality of images associated with a respective time;

determine a correlation between at least two of the second plurality of images; and

determine the period of the periodic motion based on the respective times associated with the at least two of the second plurality of images.

41. An apparatus according to Claim 22, the processor further operative in conjunction with the stored process steps to:

acquire a second plurality of images of a second portion of the body, each of the second plurality of images associated with a respective time substantially equal to a time associated with one of the plurality of images of the first portion of a body plus an integer multiple of the determined period.

42. An apparatus according to Claim 41, the processor further operative in conjunction with the stored process steps to:

generate a combined image based on the at least two of the plurality of images;

generate a second combined image based on at least two of the second plurality of images, each of the at least two of the second plurality of images associated with a time substantially equal to a time associated with one of the at least two of the plurality of images of the first portion of a body plus an integer multiple of the determined period; and

generate a third combined image based on the combined image and the second combined image.